Department of Energy
Idaho Operations Office
850 Energy Drive
Idaho Falls, Idaho 83401-1563

June 18, 1999

Mr. Wayne Pierre, Team Leader
Environmental Cleanup Office
U.S. Environmental Protection Agency, Region X
1200 Sixth Avenue
Seattle, Washington 98101

Mr. Dean Nygard, Bureau Chief
Remediation Bureau
Idaho Department of Health & Welfare
1410 N. Hilton
Boise, Idaho 83706

SUBJECT: Transmittal of the Final Draft OU 4-13A Interim Action Proposed Plan – (OPE-ER-84-99)

Dear Mr. Pierre and Mr. Nygard:

Enclosed are copies of the final Draft OU 4-13A Interim Action Proposed Plan. The preliminary comments from the State and EPA have been incorporated into this plan. If there are any further comments, please let us know by July 6, 1999. At that point there will be 15 days for any additional comment resolution and then it will be printed and mailed the third week of July. Our official public comment period will be August 1-31, 1999. The public meetings are scheduled for August 17-19, 1999.

If you have any questions, please call Carol Hathaway at (208) 526-4978 or me at (208) 526-4392.

Sincerely,

Kathleen E. Hain, Manager
Environmental Restoration Program

Enclosure

cc: K. Rose, EPA, 1200 Sixth Avenue, Seattle, WA 98101
C. Cody, IDHW DEQ,
T. Kluk, DOE-HQ, EM-441
Ethan Merrill, DOE-HQ, EM-441

July 1999

U.S. Department of Energy
U.S. Environmental Protection Agency
Idaho Department of Health and Welfare,
Division of Environmental Quality

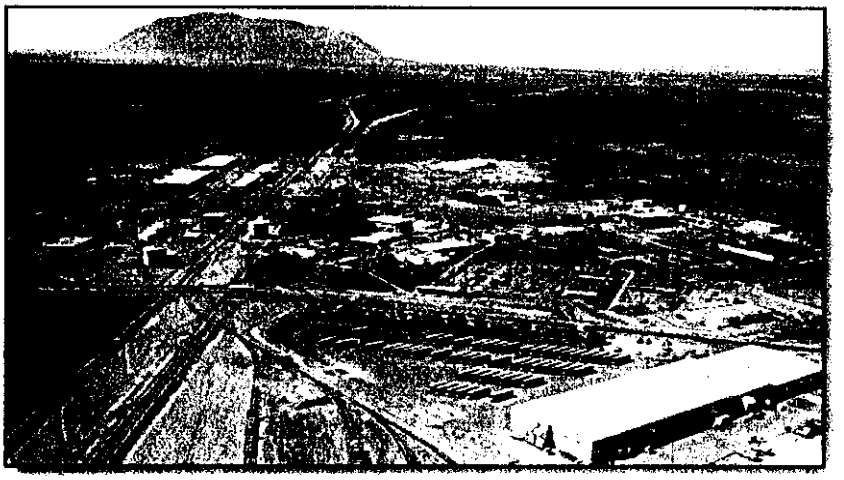
DRAFT

Public Comment Period
August 1 – August 30, 1999

Proposed Plan for

Operable Unit 4-13A Interim Action

Waste Area Group 4 - Central Facilities Area
Idaho National Engineering and Environmental Laboratory



The Central Facilities Area in 1998; view to the south.

Note: When technical or administrative terms are first used, they are printed in ***bold italics*** and explained in the margin. Referenced documents are listed at the end of this proposed plan. Additional information is also provided in the margin.

National Priorities List:
The formal list of the nation's hazardous waste sites that have been identified for possible remediation (cleanup). Sites on the list are ranked based on their potential risk to human health and the environment.[1]

Federal Facility Agreement and Consent Order:
An agreement among the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the State of Idaho to evaluate potentially contaminated sites at the INEEL, determine if remediation is warranted, and select and perform remediation, if necessary.[2]

Introduction

Between the 1950s and 1980s, research activities at the Idaho National Engineering and Environmental Laboratory (INEEL) left behind contaminants that could pose a risk to human health and the environment. Because of this, the INEEL was placed on the ***National Priorities List*** of hazardous waste sites in 1989. A 1991 ***Federal Facility Agreement and Consent Order*** outlined the cleanup process and schedule for the

How You Can Participate:

Read this proposed plan and review related documents in the INEEL Administrative Record (see page 29 for details).

Call the INEEL or contact the State of Idaho, EPA, or DOE project managers for more information or to schedule a briefing (see page 29 for details).

Attend one of the public meetings to hear more, ask questions, and tell us what you think (see page 28 for details).

Comment on this proposed plan using the postage-paid comment form on the back cover.

Inside This Plan

INEEL, dividing it into 10 waste area groups. The Central Facilities Area is Waste Area Group 4 (Figure 1).

A comprehensive ***remedial investigation and feasibility study*** was conducted to assess the risks and evaluate cleanup alternatives for the Central Facilities Area. The investigation is detailed in the *Comprehensive Remedial Investigation/Feasibility Study for the Central Facilities Area Operable Unit 4-13 at the Idaho National Engineering and Environmental Laboratory* (the RI/FS).[3]

As the investigation was nearing completion, ***nitrates*** were detected in the groundwater beneath the area. Because the comprehensive investigation of surface contamination was nearly complete, the ***Agencies*** decided to address surface contamination separately from groundwater contamination. As a result, an interim action (designated OU 4-13A) is being proposed to address surface contamination at three sites at the Central Facilities Area (Figure 2).

To address groundwater issues, the comprehensive remedial investigation will be delayed for 2 years to allow time to drill additional monitoring wells and collect data. This delay represents a departure from the original schedule identified in the Federal Facility Agreement and Consent Order. The comprehensive investigation (designated OU 4-13B) is now scheduled to be completed in 2002.

Use of the interim action process allows cleanup to start as soon as possible at the three surface contamination sites. Cleanup will address potential risks to human health and the environment using alternatives developed in the RI/FS.

remedial investigation and feasibility study (RI/FS):
A study that identifies what contaminants are present in an area and assesses the risk they pose to human health and the environment. The study also evaluates remedial options. A comprehensive remedial investigation and feasibility study is the extensive, final study for a waste area group that reviews previous cleanup activities, assesses combined impacts of all release sites, and evaluates the cumulative risk for an entire area.

nitrates:
Chemical compounds containing nitrogen. Nitrates in water can cause severe illness in infants and domestic animals (such as cats and dogs). Nitrates are found in irrigation and field runoff, septic systems, manure, industrial wastewater, and landfills.

Agencies:
The U.S. Department of Energy (DOE); the U.S. Environmental Protection Agency (EPA); and the Idaho Department of Health and Welfare, Division of Environmental Quality – the three agencies responsible for the scope and schedule of remedial investigations at the INEEL.

info The INEEL lies within the lands traditionally occupied by the Shoshone-Bannock Tribes. The tribes have used the land and waters within and surrounding the INEEL for fishing, hunting, and plant gathering, in addition to medicinal, religious, ceremonial, and other cultural uses. Under a cooperative agreement between the tribes and the DOE, some tribal activities continue today within the INEEL boundaries.[4]

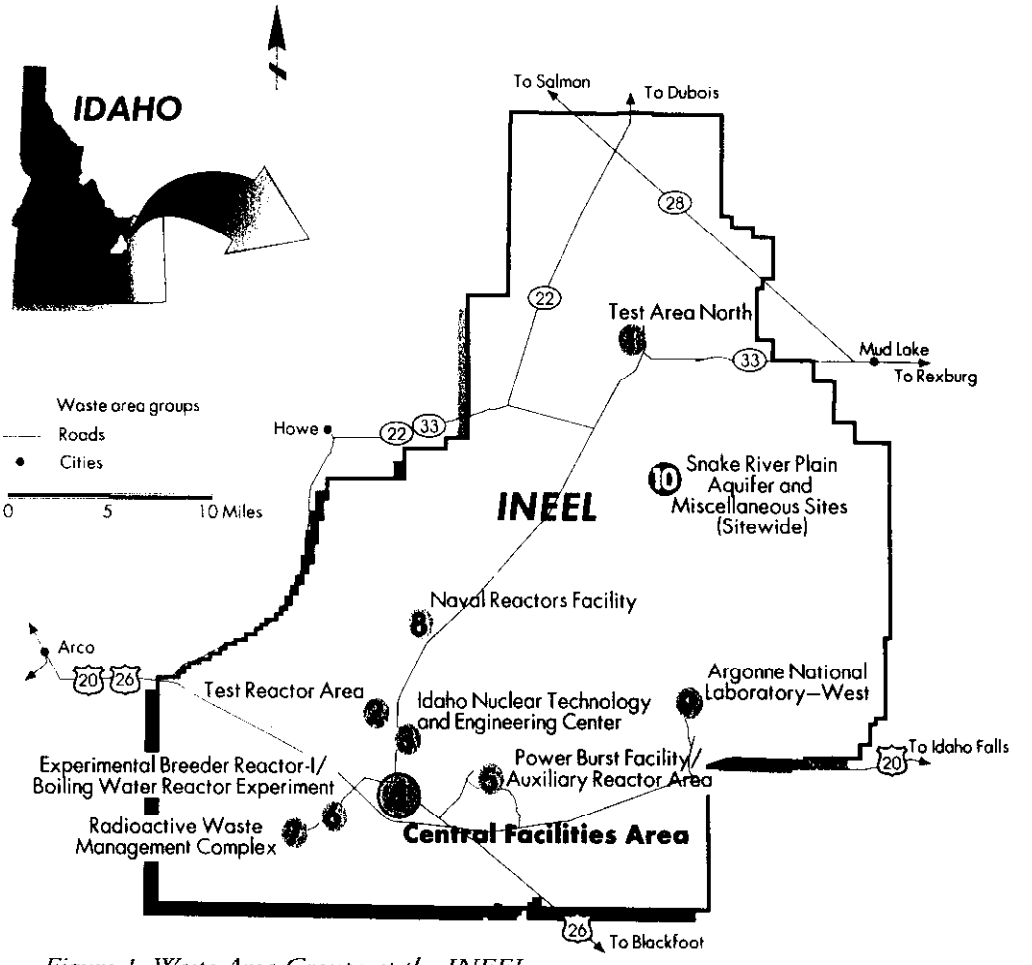


Figure 1. Waste Area Groups at the INEEL.

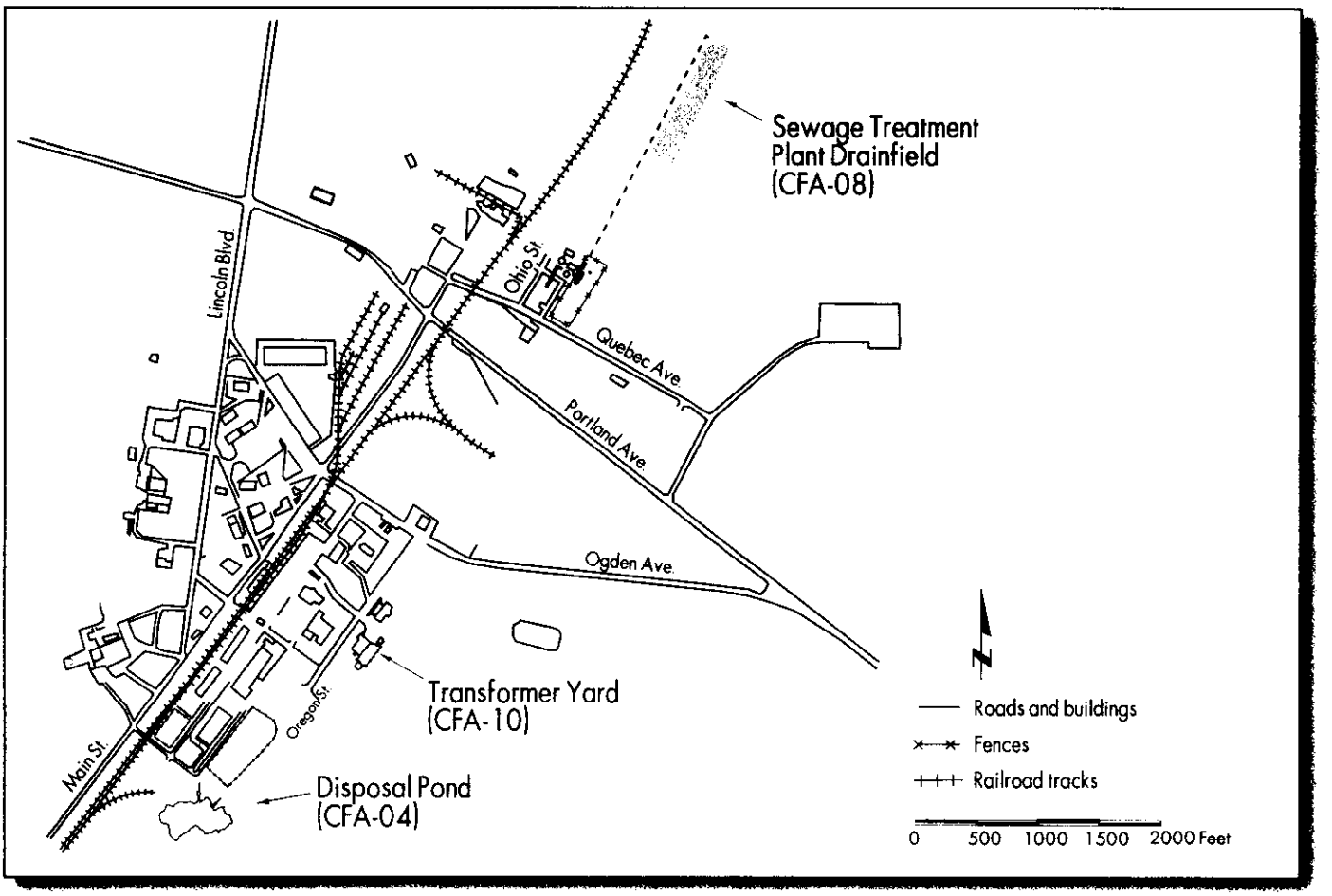


Figure 2. Sites that require cleanup at the Central Facilities Area.

This proposed plan describes the three sites at the Central Facilities Area at which interim action is required. For each, the potential risks are defined, cleanup alternatives are described, the Agencies' preferred alternative is identified, and the basis for that preference is explained. This proposed plan also identifies the sites that do not require cleanup. The reference documents, including the RI/FS and related documents, are available in the INEEL ***Administrative Record.***

The Agencies identified and concurred with the preferred cleanup alternatives presented in this proposed plan. Community preferences and concerns will be considered in making the final selection of remedial actions. Members of the public are encouraged to review the proposed plan and submit comments about it during the public comment period (August 1 through 30, 1999). Comments may be submitted as described on page 28. The public's comments and the Agencies' responses will be published in the Responsiveness Summary section of the ***Record of Decision,*** which is scheduled for completion in November 1999.

Background

The INEEL is an 890-square-mile DOE facility on the Eastern Snake River Plain in southeastern Idaho (see Figure 1). The Eastern Snake River Plain is a relatively flat, semiarid desert. Precipitation and streams on and around the plain recharge the Eastern Snake River Plain Aquifer, which is Idaho's major groundwater source.

Administrative Record:
The collection of information, including reports, public comments, and correspondence, used by the Agencies to select a cleanup action. A list of locations where the INEEL Administrative Record is available appears on page 29.

Record of Decision:
A public document that explains which remedy will be used at a site and why. The Responsiveness Summary contains the public comments received on the proposed actions and the Agencies' responses.

info The Eastern Snake River Plain Aquifer, one of the largest in the U.S., was classified as a sole-source aquifer by the EPA in 1991.[5] A sole-source aquifer supplies at least 50% of the drinking water consumed in the area overlying the aquifer. About 9% of the Eastern Snake River Plain Aquifer lies beneath the INEEL.

institutional controls:
Limited actions that minimize potential dangers to human health and the environment. The controls can include long-term environmental monitoring, access restrictions (such as fencing or other physical barriers, warning signs, and land-use restrictions), and maintenance (such as runoff control and repairs to fencing). At sites where low-level radioactive waste remains in place, these controls are required to be established and maintained for a minimum of 100 years. At WAG 4, the 100-year period of institutional control is assumed to end in 2098.

metals:
Metallic elements that can damage living things at low concentrations and tend to accumulate in the food chain. Examples are mercury and lead.

radionuclides:
Radioactive forms of elements that can have long lives as soil or water pollutants. Exposure can cause cancer. An example is cesium-137.

Contaminants of Concern

Human Health Risk

Sewage Treatment Plant Drainfield (CFA-08)
cesium-137

Ecological Risk

Disposal Pond (CFA-04)
mercury

Sewage Treatment Plant Drainfield (CFA-08)
mercury

Transformer Yard (CFA-10)
copper
lead

The aquifer is about 200 feet below the ground surface at the north end of the INEEL and slopes downward to a depth of more than 900 feet at the south end. At the Central Facilities Area, in the south-central part of the INEEL, the top of the aquifer is about 485 feet below the ground surface. Between the aquifer and the ground surface are layers of basalt interbedded with thin layers of low-permeability sediments. The sediments tend to slow the movement of water to the aquifer.

The first buildings in the Central Facilities Area were constructed in the 1940s and 1950s to house the U.S. Navy's gunnery range personnel. The facilities have been modified over the years to fit the changing needs of the INEEL and now house centralized support services for INEEL contractors and the DOE. The facilities include administrative offices, research laboratories, a cafeteria, emergency services, construction and craft shops, warehouses, and landfills. More than 800 employees currently work at the Central Facilities Area.

Since 1991, 52 potential release sites have been studied at the Central Facilities Area. The 1991 Federal Facility Agreement and Consent Order identified 44 sites; 8 additional sites were identified after 1991.[6] Sites investigated at the Central Facilities Area include landfills, spills, ponds, storage tanks, dry wells, and a sewage treatment plant, as well as buildings and structures.

Three earlier Records of Decision addressed 25 Central Facilities Area sites:

- The 1992 Record of Decision for the Ordnance Interim Action directed that two sites, the Central Gravel Pit and the French Drain North, would be investigated further and cleaned up, if necessary.[7] An artillery shell was believed to be buried at the Central Gravel Pit; however, an extensive search was unable to locate any shell. The French Drain North of CFA-633 also was believed to contain an artillery shell. However, since the drain had previously been capped with concrete, it was determined that any artillery shell present would not pose an unacceptable risk to human health and the environment. Therefore, no further actions were required at either site.[8]

- The 1993 Record of Decision for the Motor Pool Pond documented that no unacceptable risk to human health or the environment was posed.[9] Evaluation of groundwater contamination was delayed and will be addressed in the comprehensive RI/FS.

- A 1995 Record of Decision directed that the three Central Facilities Area landfills (CFA-01, -02, and -03) would be capped with a native soil cover, and designated 19 tank sites as requiring no further action.[10]

Twenty-four of the 27 remaining sites have been determined by the Agencies not to require cleanup, although ***institutional controls*** will be maintained at sites with residual contamination. (See page 25 for a discussion of the sites not requiring cleanup.) The remaining three Central Facilities Area sites are contaminated with ***metals***, ***radionuclides***, or combinations of these that could pose a threat to human health and the environment if they are not cleaned up: the Disposal Pond (CFA-04), the Sewage Treatment Plant Drainfield (CFA-08), and the Transformer Yard (CFA-10). These sites will be addressed by the cleanup actions proposed in this plan.

Aquifer Contamination

During post-Record of Decision monitoring of the aquifer beneath the Central Facilities Area landfills, sampling data revealed that nitrate concentrations in two

monitoring wells located downgradient from the landfills exceeded the drinking water standard of 10 milligrams per liter (mg/L). Existing data were evaluated and computer modeling was conducted to determine the potential source of the nitrates.[11] The investigation centered on five potential sources:

- **Central Facilities Area Landfills I, II, and III (CFA-01, -02, and -03).** These sites were remediated in 1996. Although monitoring wells at the landfills have detected nitrates in the aquifer immediately beneath the landfills, the nitrate concentrations detected were well below 10 mg/L. Therefore, the landfills were eliminated from further consideration.

- **Idaho Nuclear Technology and Engineering Center (INTEC).** Large quantities of nitrates were discharged from operations at the INTEC (formerly the Idaho Chemical Processing Plant), which is upgradient from the Central Facilities Area. However, the nitrates discharged at the INTEC and those in the monitoring wells at the landfills have different chemical signatures. In addition, nitrate concentrations in the aquifer at the INTEC do not exceed the drinking water standard. Therefore, the INTEC is believed to not be the source of the nitrates.

- **Sewage Treatment Plant Drainfield (CFA-08).** Wastewater containing nitrates was discharged to the old sewage treatment plant drainfield from 1944 to 1995. Computer modeling indicates that nitrate concentrations in wastewater discharged to the drainfield were not high enough to produce the levels found at the two monitoring wells. In addition, the lateral distance between the drainfield and the monitoring wells makes the drainfield a less likely source. However, because monitoring data are not available from before 1986, the drainfield has not been eliminated as a source at this time.

- **CFA Sewage Treatment Lagoons and Pivot Irrigation System.** The new sewage treatment plant lagoons and pivot irrigation system began operating in 1995. Nitrate concentrations in wastewater discharged to the lagoons and irrigation system have not exceeded 5.4 mg/L. Computer modeling indicates that the nitrate concentrations in the wastewater would have to be about 70 mg/L to result in the concentrations recorded in the monitoring wells. However, because the lagoons and irrigation system contribute nitrates to the aquifer, they have not been eliminated as a source at this time.

- **Disposal Pond (CFA-04).** The Chemical Engineering Laboratory used several nitrate compounds in experimental calcining processes from 1953 to 1969. The laboratory discharged both liquid and solid waste containing these compounds to the disposal pond. Computer modeling based on soil samples collected in 1997 (28 years after operations ceased) did not predict the concentrations of nitrate observed in the monitoring wells. However, contamination may have leached below the level of the surface soils. Calculations based on process knowledge indicate that enough nitrates were disposed of in the pond to produce the concentrations observed in the monitoring wells. There also appears to be a possible hydrogeologic connection between the pond and the monitoring wells. Therefore, the disposal pond has not been eliminated as a possible source at this time.

The objective of the comprehensive remedial investigation (OU 4-13B) is to determine the source of the nitrate concentrations in the aquifer and determine whether remediation is required. In addition, any other potential contaminants of concern in the groundwater will be investigated in the comprehensive investigation.

info Remediation at INTEC is being conducted under Waste Area Group 3.

info Remediation of the Sewage Treatment Plant Drainfield (CFA-08) will be carried out under the interim action described in this proposed plan.

info The Central Facilities Area Sewage Treatment Plant lagoons and pivot irrigation system are currently in use; any future cleanup will be conducted after operations cease.

info Remediation of the Disposal Pond (CFA-04) will be carried out under the interim action described in this proposed plan.

baseline risk assessment:
The part of a remedial investigation that determines whether contaminants of concern identified at a site pose a current or potential threat to human health and the environment, if no remedial action is taken.

info Contaminant exposure pathways include soil ingestion, dust inhalation, volatile organic compound inhalation, external radiation exposure, groundwater ingestion, homegrown produce ingestion, skin absorption, and inhalation of vapors during indoor water use.

info The risk assessment process provides information, not predictions. For example, the hypothetical future residential scenario examines what risk might be incurred by someone who chose to live at the Central Facilities Area 100 years from now without any site cleanup. The scenario includes several assumptions.[14] One assumption is that a future resident might excavate a basement 10 feet deep or down to the basalt bedrock, whichever is less, and spread the excavated (potentially contaminated) soil outside the house. Another assumption is that the resident might eat produce grown in the contaminated soil.

excess cancer risk:
The increased risk of developing cancer resulting from exposure to contaminants at a release site.

hazard index:
A ratio between the contaminant intake concentrations and the concentrations that are not likely to cause adverse effects. The hazard index measures potential adverse health effects other than cancer (such as liver or kidney damage caused by exposure to contaminants), especially to sensitive populations such as children or pregnant women. For each contaminant at a site, a hazard quotient is calculated. The sum of all hazard quotients for human health risk at a site is its hazard index.

Summary of Site Risks

The ***baseline risk assessment*** of contaminated sites at the Central Facilities Area was based on data summarized in the RI/FS.[12] The risk assessment examined three major areas:

- *Contaminants of Concern:* What contaminants are present that might pose a risk to human health or the environment, and how toxic or carcinogenic (cancer-causing) are they?
- *Exposure Pathways:* How might humans, animals, or the environment come in contact with the contaminants?
- *Receptors:* Who or what could be exposed to the contaminants?

The human health risk assessment quantified potential carcinogenic and noncarcinogenic adverse health effects.[13] The assessment was based on a hypothetical residential scenario that begins 100 years in the future. The assessment also included occupational scenarios to examine potential risks to current and future workers.

The ecological risk assessment evaluated potential adverse effects to plants and animals.[15] The assessment included species that are common to the Central Facilities Area, as well as any threatened or endangered species that may be present in the area. This was a preliminary screening-level ecological risk assessment. The results of the assessment will be integrated with assessments of other waste area groups and evaluated as part of a cumulative ecological risk assessment in Waste Area Group 10.

Two measures are used to evaluate the significance of the human health risk assessment results: ***excess cancer risk*** and ***hazard index.*** If the excess cancer risk is within or above the acceptable risk range of 1 chance in 10,000 to 1 chance in 1,000,000, if the hazard index for humans is greater than 1, or if lead concentrations are greater than 400 milligrams per kilogram (mg/kg), site remediation was considered.

Table 1. Central Facilities Area sites at which risks to human health exceed threshold levels. (Shading indicates risks that exceed threshold levels.)

	Human Health Risks			
	Occupational Scenario *Future*		**Residential Scenario** *Future*	
Site	Excess Cancer Risk	Hazard Index	Excess Cancer Risk	Hazard Index
Disposal Pond (CFA-04)	6 in 1,000,000[a]	0.7	4 in 100,000[a]	62
Sewage Treatment Plant Drainfield (CFA-08)	2 in 10,000[b]	0.001	4 in 10,000	0.001
Transformer Yard (CFA-10)	_[c]	_[c]	_[c]	_[c]

a. The cumulative excess cancer risk is the sum of the risks from uranium-238 and arsenic. Table 9-1 of the RI/FS lists all contaminants contributing to cumulative risks greater than 1 in 1,000,000.
b. Although risks exceed threshold levels under the current occupational scenario, the risks are managed to ensure worker safety. For more information, see Table 9-1 of the RI/FS.
c. Calculation of numeric health risk values for lead is not possible. Instead, the EPA residential screening level for lead was used to determine the need for cleanup.

Table 2. Risks to the environment that exceed threshold levels at the three Central Facilities Area sites proposed for remediation. (Shading indicates risks that exceed threshold levels.)

	Environmental Health Risks			
Site	Contaminant of Concern	Hazard Quotient[a]	Maximum Contaminant Concentration (mg/kg)	Threshold Level (mg/kg)
Disposal Pond (CFA-04)	mercury	1 to 30,000	439	0.5
Sewage Treatment Plant Drainfield (CFA-08)	mercury[b]	≤1 to 30	0.51	0.5
Transformer Yard (CFA-10)	copper	<1 to 70	259	220
	lead	<1 to 3,000	3,300	170

a. Hazard quotients are based on preliminary screening.
b. Cesium-137 at the Sewage Treatment Plant Drainfield does not exceed threshold levels for ecological receptors.

One measure is used to evaluate the significance of the ecological risk assessment results: the hazard quotient. The ***hazard quotient*** is used as an indicator of risk. Sites with a hazard quotient or hazard index greater than the target value (1 for nonradionuclides and 0.1 for radionuclides) are evaluated further. Ten sites at the Central Facilities Area do not pose a potential human health risk but may pose a potential ecological risk: CFA-01, CFA-02, CFA-05, CFA-13, CFA-17, CFA-21, CFA-26, CFA-41, CFA-43, and CFA-47.[16] Population-level ecological risks at these three sites will be evaluated as part of the cumulative sitewide investigation to be conducted under Waste Area Group 10.

The risk assessments for the Central Facilities Area concluded that three sites pose a potential threat to human health. The exposure pathways of concern for human health identified by the baseline risk assessment are direct radiation exposure, ingestion of soil, and ingestion of homegrown produce.[17] The three sites also have ecological hazard quotients greater than 10. Tables 1 and 2 summarize the risk assessment results for these three sites.

Evaluation Criteria and Process

As part of the Central Facilities Area RI/FS, cleanup alternatives were developed for three Central Facilities Area sites that pose a potential risk to human health and the environment. Development of the alternatives was based on experience from previous studies conducted for other INEEL sites and other areas throughout the U.S. with similar characteristics. Alternatives must be evaluated against the nine criteria defined by CERCLA.[18] These criteria encompass the legal requirements as well as other technical, economic, and practical factors. They are used to gauge the overall feasibility and acceptability of remedial alternatives.

The first two criteria — overall protection of human health and the environment and compliance with applicable or relevant and appropriate requirements (ARARs) — are considered "threshold criteria." An alternative must meet the threshold criteria to be eligible for selection. The next five criteria are "balancing criteria" and are used to weigh major trade-offs among the alternatives. The final two criteria, called "modifying criteria," are used to factor in state and community concerns. Each alternative is first assessed individually against the criteria. A comparative analysis then assesses the performance of each alternative relative to the others.

hazard quotient:
A measure of potential adverse effects to plants or animals. The ecological risk assessment uses a ratio that compares the exposure level (or dose) to the toxicity reference value. See Section 7.4 of the RI/FS for more information.

info The preliminary ecological risk assessments from the Waste Area Groups 1 through 9 will be integrated in the Waste Area Group 10 baseline ecological risk assessment. Sitewide populations will be considered in this assessment.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):
Also known as the Superfund Act, this is the federal law that establishes a program to identify, evaluate, and remediate sites where hazardous substances may have been released (leaked, spilled, or dumped) to the environment.

info The term "laws" is being used in this proposed plan to designate applicable or relevant and appropriate requirements (ARARs), the second CERCLA evaluation criterion. ARARs are the body of Federal and State laws, regulations, and standards governing environmental protection and facility siting with which the selected cleanup alternative must comply.

remedial action objectives: Remediation goals that set acceptable exposure levels to protect human health and the environment. Remedial action objectives at the Central Facilities Area meet residential risk levels. Final remediation goals will be determined when the remedy is selected.

info Investigation-derived waste, including samples returned from analytical laboratories, was generated during the investigations of the Central Facilities Area sites. Investigation-derived waste is contaminated soil, debris, liquid, sampling equipment, and personal protective equipment generated during site characterization and removal actions. Actions taken prior to or during cleanup will include appropriate disposal of this waste in compliance with laws.

The cleanup alternatives for the Central Facilities Area sites were evaluated in the RI/FS using the first seven criteria.[19] Results of the evaluation are presented in this proposed plan. Public comment is requested, so that the Agencies can factor in community preferences and concerns during final selection of the remedies. The public's comments may prompt the modification of aspects of the preferred alternative or selection of a different alternative. State acceptance and Agency concurrence will be demonstrated by the signing of the Record of Decision.

To further guide the selection of cleanup alternatives, ***remedial action objectives*** are developed to define specific goals the cleanup action must achieve.[20] For the three sites addressed in this proposed plan, the remedial action objectives are:

- Prevent direct exposure to radionuclide contaminants of concern that would result in a total excess cancer risk greater than 1 in 10,000.
- Prevent ingestion of radionuclide and non-radionuclide contaminants of concern that would result in a total excess cancer risk greater than 1 in 10,000 or a total hazard index greater than 1.0.
- Prevent exposure to lead at concentrations over 400 mg/kg, the EPA residential screening level for lead.
- Prevent degradation of covers over contamination remaining in place that would result in exposure to contaminants resulting in a total excess cancer risk for the site greater than 1 in 10,000 or a total hazard index greater than 1.0.
- Prevent exposure of ecological receptors to contaminated soil with concentrations greater than or equal to 10 times background values that result in a hazard quotient greater than or equal to 10.

These remedial action objectives are at the upper end of the acceptable risk range, because (1) conservative exposure parameters were used in the risk assessment for estimating risk due to nonradionuclides and (2) EPA radiation standards, which apply to risks from exposure to radionuclides, are generally set at a risk level of 1 in 10,000.

info CERCLA Evaluation Criteria

Threshold Criteria

✔ ***Overall protection of human health and the environment***
Does the alternative protect human health and the environment in both the short and the long term by eliminating, reducing, or controlling the risk?

✔ ***Compliance with applicable or relevant and appropriate requirements (ARARs)***
Does the alternative comply with environmental laws?

Balancing Criteria

✔ ***Long-term effectiveness and permanence***
Does the alternative reliably protect human health and the environment over time? How certain is it that the alternative will be successful? Once cleanup goals have been met, will protection be maintained?

✔ ***Reduction of toxicity, mobility, or volume through treatment***
How much of the contamination will be eliminated? Is the treatment permanent? What risks do the post-treatment residuals pose?

✔ ***Short-term effectiveness***
Does the alternative pose any risks to the community, workers, or the environment during implementation? How soon will protection be achieved?

✔ ***Implementability***
Is the proposed technology feasible and reliable? Can its effectiveness be monitored? Are the necessary materials, equipment, specialists, and services available?

✔ ***Cost***
What are the estimates for capital costs and for operating and maintenance costs? Are the costs proportional to the overall effectiveness of the alternative?

Modifying Criteria

✔ ***State acceptance***
Does the state concur with the preferred alternative?

✔ ***Community acceptance***
Which aspects of the alternatives do the public support or oppose?

Preliminary remediation goals are quantitative cleanup levels used in planning remedial actions and assessing effectiveness of remedial alternatives. The goals are the concentration of a contaminant that correspond to potential risk levels of 1 in 10,000. The preliminary remediation goals for the three Central Facilities Area sites are presented in the site-specific discussions. Final remediation goals will be contained in the Record of Decision.

The process of evaluating alternatives requires that a "No Action" alternative be developed for each site to establish a baseline for comparison. Under the No Action Alternative, no cleanup action of any type would be performed. ***Environmental monitoring*** and 5-year reviews would be carried out under the No Action Alternative.

Costs for each alternative are calculated in terms of net present value, a type of cost estimate that factors in inflation but allows for equal comparison of long-term and short-term alternatives. Capital costs are those required to carry out the remediation. They include the costs of design, construction, transportation, and treatment. Operating and maintenance costs cover the labor and maintenance required to ensure that remediation remains effective. Detailed cost estimates are provided in Section 11 and Appendix L of the RI/FS.

For any remedial action that leaves contamination in place (such as limited action or containment), environmental monitoring, 5-year site reviews, and other institutional controls will be implemented to ensure that the action continues to protect human health and the environment. The Record of Decision will be reevaluated if monitoring or review data indicate that all or part of the selected remedy is not protective.

Description of Sites and Evaluation of Alternatives

Three sites at the Central Facilities Area could pose current or future risks to human health and to the environment if they are not remediated. For each site, this proposed plan describes the site's history and physical characteristics, the nature of contamination, the remediation alternatives, and the Agencies' preferred alternative.[22] For the reader's convenience, a summary of the sites and the preferred alternative for each is included on page 32.

The proposed INEEL CERCLA Disposal Facility (ICDF) was selected as the on-site disposal facility for evaluation in the RI/FS. The facility, which would cover about 54 acres south of the Idaho Nuclear Technology and Engineering Center (formerly the Idaho Chemical Processing Plant), would accept only wastes generated within INEEL boundaries during CERCLA actions. The facility is currently under review as part of the proposed plan for Waste Area Group 3 (the Idaho Nuclear Technology and Engineering Center).[23] If developed, the ICDF would open to receive soils in the year 2003.

Other ***on-site*** disposal facilities, including the Radioactive Waste Management Complex, were considered during the RI/FS. However, budgetary, regulatory, and operational considerations reduce their viability.[24]

Several ***off-site*** disposal facilities are available, including the Envirocare facility approximately 300 miles south of the INEEL at Clive, Utah.[25] As described in the evaluation of alternatives for each site, the Agencies selected off-site disposal as the contingent alternative to on-site disposal if the ICDF is not built or if its availability is delayed.

environmental monitoring:
Sampling of soil, air, water, plants, or animals to detect changing conditions at a site that may require further evaluation. Environmental monitoring would continue for at least 100 years after the site is remediated if contamination remains at the site. For the three sites addressed in this proposed plan, the only environmental monitoring would be soil monitoring, because the only pathways present are ingestion of soil or homegrown produce and direct exposure to soil contaminants.[21]

For the three sites addressed in this proposed plan, the principal laws (ARARs) that the selected cleanup alternative must comply with are:

- Idaho Hazardous Waste Management Act
- Resource Conservation and Recovery Act (for CFA-04 only)
- Rules for Control of Air Pollution in Idaho
- Procedures for Planning and Implementing Off-Site Response Actions
- National Archaeological and Historic Preservation Act
- National Emissions Standards for Hazardous Air Pollutants.

A detailed list of specific laws that apply to remediation of the three sites is in Tables 12-1 through 12-5 of the RI/FS.

on-site:
On the INEEL.

off-site:
Off the INEEL.

Disposal Pond (CFA-04) Summary

Contaminant of Concern

- mercury

Contaminated Material

- 8,290 yd^3 (estimated) of surface and subsurface soil
- 796 yd^3 of it subject to RCRA regulations

Alternatives Evaluated

1. No Action
2. Limited Action (screened out during preliminary evaluation)
3a. Excavation, Treatment by Stabilization, and On-Site Disposal
3b. Excavation, Treatment by Stabilization, and Off-Site Disposal
4. Containment

☑ Preferred Alternative

3a – Excavation, Treatment by Stabilization, and On-Site Disposal

Advantages

- Removes contamination
- Lowest cost of alternatives that meet threshold criteria
- Reduces mobility of contaminants

Disadvantages

- Availability of ICDF (on-site disposal facility) uncertain
- Increases volume of contaminated media

Estimated Cost (in millions, net present value)

Capital	$6.7
Operating and Maintenance	0.2
Total Cost	$6.9

decontamination and dismantlement:
When facilities that contain radioactive or hazardous materials reach the end of their useful life, they are decommissioned (removed from operation). Depending on the amount and kind of contamination, the facility may be used for another purpose after decontamination, or torn down.

Disposal Pond (CFA-04)

Description

CFA-04 is a shallow, dry basin about 200 feet wide by 500 feet long by 8 feet deep. It was originally created when soils were removed for a construction project. Later, the edges of the basin were banked up and the pond was used to collect storm runoff from the Central Facilities Area and to dispose of wastes from operations at the Chemical Engineering Laboratory, approximately 400 feet to the north (Figure 3). From approximately 1953 to 1969, laboratory liquid wastes were discharged to the pond through an underground drain line. The drain line will be addressed under the INEEL's ***decontamination and dismantlement*** program. There are no current discharges to the pond.

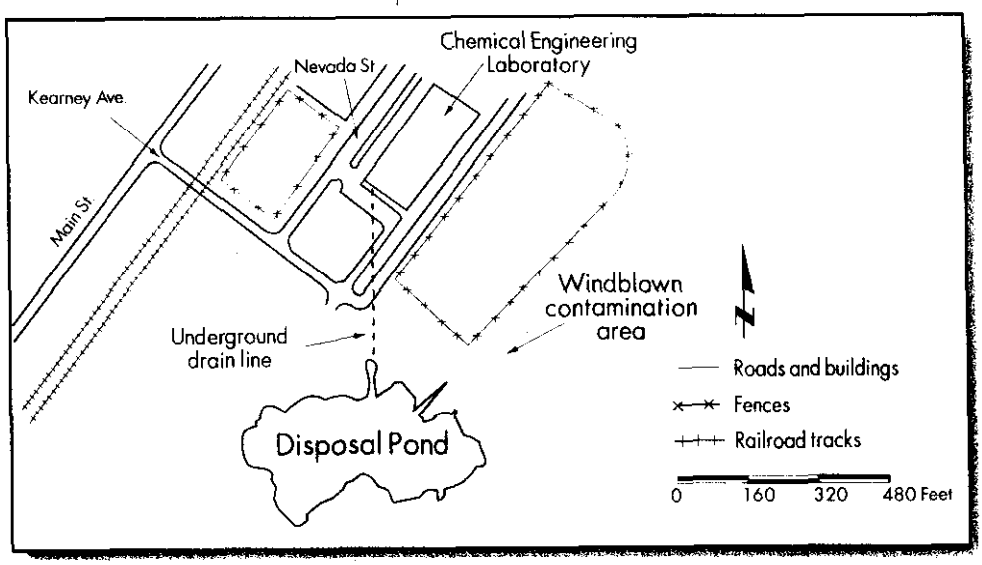


Figure 3. The Disposal Pond (CFA-04).

From 1953 to 1965, the laboratory carried out pilot studies of a nuclear waste calcining process using mock fuel rods. Mercury, used in the research as a catalyst, was contained in the wastewater discharges. Radionuclides and other materials were used as tracers in some tests.

Consequently, low concentrations of metals and low levels of radionuclides, including copper and cesium-137, are present in the disposal pond. Because metals are present, the contaminated soil must be disposed of in accordance with *Resource Conservation and Recovery Act* regulations.

The laboratory also disposed of solid wastes at the pond. Simulated calcine, a dry, white granular material contaminated with mercury, was dumped at the edge of the pond. Subsequent wind dispersal of the simulated calcine resulted in surface contamination of a 20,000-square-foot area north of the disposal pond. Bulky waste, including roofing material from construction projects at the INEEL, was buried in the berm around the pond.

About 3,000 cubic yards of mercury-contaminated soil and simulated calcine were removed from the disposal pond in 1994 and 1995.[26] These soils were treated by retorting, a process that uses heat to separate the mercury from the contaminated materials. Samples were collected after the action to determine whether additional mercury was present in the pond. The data indicated that additional investigation and cleanup would be necessary. The construction debris remained undisturbed in the pond berm.

The removal action was intended to address simulated calcine that was being dispersed from the site by wind. Although contaminated materials were removed from the edges of the pond, the bottom of the pond was not remediated because calcine was not observed there. Limited sampling indicated that contaminants in the bottom of the pond were below remediation goals. However, further investigation during the RI/FS showed additional contamination in the bottom of the pond.

Data from sampling in 1994, 1995, 1997, and 1998 were used to characterize the nature and extent of contamination at the disposal pond. Mercury was identified at levels that pose risks to human health and the environment (Table 3). The thickness of contaminated soil in the bottom of the pond ranges from a few inches to more than 2 feet. The contaminated soil in the windblown area north of the pond is conservatively estimated to be no more than 6 inches deep. The total volume of contaminated soils at the site is approximately 8,290 cubic yards. The sampling data showed, however, that an estimated 796 cubic yards of soil is considered hazardous waste under the Resource Conservation and Recovery Act.

The RI/FS provides complete details about the investigation of the site.[27]

Resource Conservation and Recovery Act (RCRA):
A federal waste management law. Its guidelines regulate transportation, treatment, storage, and disposal of waste. RCRA waste includes material that is listed on one of EPA's hazardous waste lists or meets one or more of EPA's four characteristics of ignitability, corrosivity, reactivity, or toxicity.

Table 3. Risk assessment data for the Disposal Pond (CFA-04).

Contaminant of Concern	Maximum Detected Concentration	Preliminary Remediation Goal	Human Health Risk		Ecological Risk
			Future Residential Scenario Hazard Index	*Exposure Pathways*	*Maximum Hazard Quotient*
Mercury	439 mg/kg	0.74 mg/kg	62	soil ingestion, homegrown produce ingestion	30,000

mg/kg = milligrams per kilogram

Evaluation of Alternatives

Four alternatives were developed for the disposal pond site. Two of them, Alternatives 1 (No Action) and 2 (Limited Action), were not considered for selection because they would not meet the threshold criteria for protection of

The principal ARAR (law) evaluated for the Disposal Pond (CFA-04) was the Rules for Control of Air Pollution in Idaho for release of noncarcinogenic contaminants. For the Preferred Alternative (3a – Excavation, Treatment by Stabilization, and On-Site Disposal), this ARAR will be satisfied through use of treatment systems to minimize air emissions.

info Alternative 2, Limited Action, was eliminated during preliminary evaluation because it did not meet the threshold criteria.

Preferred Alternative

info The maximum detected concentration of mercury in the Disposal Pond (CFA-04) is 439 mg/kg. The cost estimate for the preferred alternative (Alternative 3a) is based on a preliminary remediation goal for mercury of 0.74 mg/kg, a level that will leave the area safe for residential use 100 years from now. However, a more restrictive future land use could result in possible cost reductions because less restrictive cleanup levels could be imposed. For example, if a future industrial scenario was used, the remediation goal would be increased from 0.74 mg/kg to 613 mg/kg. As a result, no action would be taken, and the estimated cost would be reduced by $5.9 M.

human health and the environment and compliance with laws. However, the No Action Alternative was evaluated in detail to provide a baseline for comparison of the alternatives. The RI/FS provides complete details about all the alternatives.[28]

Alternative 1 - No Action

Description. Under the No Action Alternative, no cleanup action of any type would be performed. Environmental monitoring and 5-year reviews would be carried out.

Evaluation. The No Action Alternative would not meet the threshold criteria for protection of human health and the environment and compliance with laws. Long-term effectiveness would be low, because contaminated soil would remain. Short-term effectiveness would be high, because no handling or transport of contaminants would be required. This alternative would not reduce toxicity, mobility, or volume through treatment. Implementability would be high, because annual environmental monitoring inspections and 5-year reviews are already in place. The estimated $1.1 million cost would result mainly from long-term monitoring.

Alternative 3 - Excavation, Treatment, and Disposal

Description. Alternative 3 would consist of excavation, treatment by stabilization with Portland cement, and disposal. Two variations of Alternative 3 were developed, differing in whether disposal would be on-site at the ICDF (Alternative 3a) or off-site (Alternative 3b).

Under Alternative 3, the contaminated soil (approximately 8,290 cubic yards) would be excavated and disposed of. Soil subject to Resource Conservation and Recovery Act regulations (estimated as 796 cubic yards) would be stabilized with Portland cement before disposal. The excavation would be backfilled with clean soil, contoured to match the surrounding terrain, sloped to divert water, and revegetated.

Under Alternative 3a, both the treated and untreated soil would be transported to the ICDF (the on-site disposal facility). If the ICDF is not completed when required per the Central Facilities Area cleanup schedule, the contingent remedy would be Alternative 3b. Under Alternative 3b, contaminated soil would be shipped to an off-site disposal facility.

Institutional controls would be used if contamination above remediation goals remained at the site. The only circumstance under which contamination would remain is if it were found at a depth of more than 10 feet below the surrounding ground surface (a reasonable level for a hypothetical basement excavation).

Evaluation. Alternative 3 would meet the threshold criteria for protection of human health and the environment and compliance with laws. Long-term effectiveness would be high, because contaminated soil would be removed from the site. Short-term effectiveness would be moderate, because equipment operators and site personnel could be exposed during excavation, treatment, transport, and disposal activities. This alternative would not reduce toxicity through treatment, but would reduce mobility. The stabilization treatment would increase the volume of waste. Implementability of Alternative 3a would be moderate, because the availability of the ICDF is uncertain. Implementability of Alternative 3b would be high because an off-site disposal facility, services, and materials are all available. The estimated cost for Alternative 3a is $6.9 million. The estimated cost of Alternative 3b is $12.8 million. Each estimated cost includes excavation, transportation, and

payment of a one-time disposal facility fee (a fixed price per cubic yard). The Alternative 3b cost would be higher because of the additional cost to transport soil several hundred miles to an off-site disposal facility.

Alternative 4 - Containment

Description. Under Alternative 4, the contaminated site would be filled with clean soil to bring the pond to grade, and capped with a protective cover (Figure 4). The cover would be an ***evapotranspiration-type engineered barrier,*** constructed of layers of rock and soil over a layer of impermeable asphalt, concrete, or geosynthetic. It would isolate the waste, inhibit intrusion by plants and animals, reduce water infiltration, and require minimum maintenance. The cover would have a life expectancy of 500 to 1,000 years. Implementation of this alternative would include maintenance and monitoring to ensure the cover's integrity.

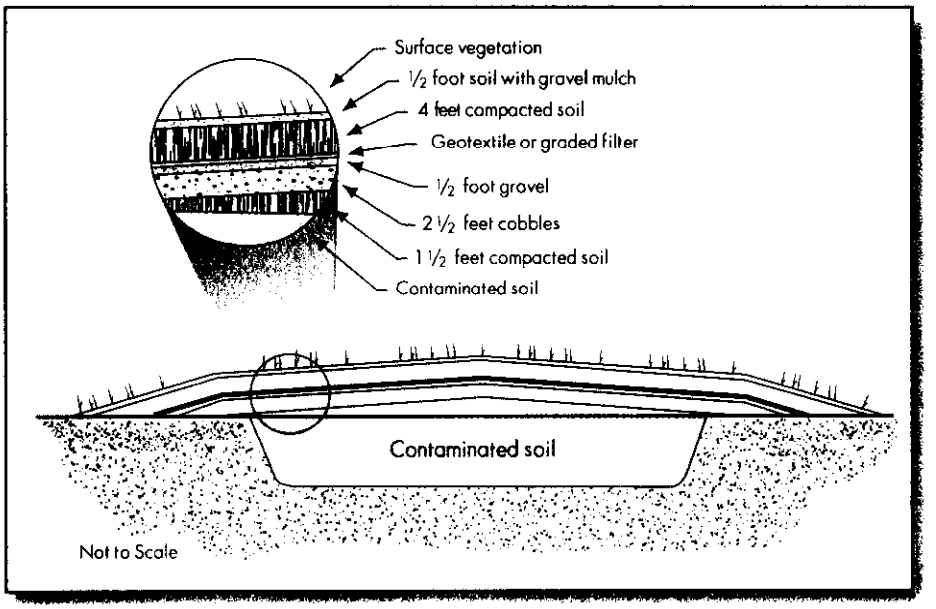


Figure 4. Cross-section of an engineered cover for containment.

evapotranspiration-type engineered barrier: A type of containment cap developed by DOE researchers to cover low-level waste sites in arid climates.[29] Surface vegetation prevents wind and water erosion of the cover materials and removes water from the cover materials through evaporation and through natural transpiration by the plants. A gravel and rock barrier layer halfway down prevents deep penetration of the cover by burrowing animals and plant roots, and helps to hold moisture in the upper layers of the cover during periods when the surface vegetation is dormant and evaporation rates are low.

Evaluation. Alternative 4 would protect human health and the environment and comply with laws. Contamination would be left in place; however, it would be contained, resulting in moderate long-term effectiveness. The short-term effectiveness would be moderate, because equipment operators and site personnel could be exposed during construction of the cover. This alternative would not reduce toxicity, mobility, or volume through treatment; however, it would prevent the spread of contamination from the site. Implementability of this alternative would be high, because construction personnel and materials are readily available on the INEEL. The estimated $7.9 million cost would include maintenance and monitoring as well as construction.

info The INEEL is expected to remain under government management and control for at least the next 100 years. After this time, the federal government is obligated to continue to manage and control areas that pose a significant health and/or safety risk to the public and workers until risk diminishes to an acceptable level.

Preferred Alternative for the Disposal Pond (CFA-04)

Table 2 summarizes the evaluation of alternatives for the disposal pond. The preferred alternative for the disposal pond is Alternative 3a — Excavation, Treatment by Stabilization, and On-Site Disposal. It would protect human health and the environment and comply with laws. It would have high long-term effectiveness because it would remove the contamination. Short-term effectiveness would be moderate, because of the possibility for worker exposure during excavation, transport, and disposal activities. It would not reduce toxicity or

Preferred
Alternative 3a

volume through treatment, but would reduce mobility through stabilization. Implementability of this alternative would be moderate, because the availability of the ICDF (the on-site disposal facility) is uncertain.

Compared to the other alternatives that would meet the threshold criteria (3b and 4), Alternative 3a would have the same or greater long-term effectiveness and the same short-term effectiveness. Its ranking for reduction of toxicity, mobility, or volume through treatment is the same for Alternative 3b because the soil would be stabilized in cement, and is greater than Alternative 4. Its implementability is lower than for Alternatives 3b and 4, given the uncertain availability of the ICDF; all other required technologies and personnel are available. The estimated $6.9 million cost is the lowest of the three alternatives that would meet threshold criteria.

If the ICDF is not completed when required per the Central Facilities Area cleanup schedule, Alternative 3b (shipment of the contaminated soil to an off-site disposal facility) would be selected as the contingent remedy. Alternative 3b is ranked the same as Alternative 3a, except that its implementability would be greater, given that off-site disposal facilities already exist. Though Alternative 3b's estimated $12.8 million cost is nearly double the estimated cost for Alternative 3a, Alternative 3b is selected as the contingent remedy instead of Alternative 4 because it would have greater reduction of toxicity, mobility and volume and it has a higher long-term effectiveness.

info The laws implementing CERCLA have a "bias for action." This means that treatment is preferred wherever practicable. The laws also stress the importance of permanent remedies.

Table 4. Comparison of alternatives for the Disposal Pond (CFA-04).

	Alternatives			
		Excavation, Stabilization and Disposal		
Criteria	No Action 1	On-Site 3a ☑	Off-Site 3b	Containment 4
Threshold Criteria [a]				
Overall protection	(N)	(Y)	(Y)	(Y)
Compliance with laws	(N)	(Y)	(Y)	(Y)
Balancing Criteria				
Long-term effectiveness	○	●	●	◒
Short-term effectiveness	●	◒	◒	◒
Reduction of toxicity, mobility, or volume through treatment	○	◒	◒	○
Implementability	●	◒	●	●
Cost (in millions) [b]				
Capital costs	$0.9	$6.7	$12.6	$4.8
Operating and maintenance costs	0.2	0.2	0.2	3.1
Total Cost	$1.1	$6.9	$12.8	$7.9

a. An alternative must meet the threshold criteria to be considered for selection. An alternative either fully satisfies the criteria or does not. Alternative 1, No Action, was evaluated in detail only to provide a baseline for comparison of the alternatives. Alternative 2, Limited Action, did not meet the threshold criteria and was eliminated from detailed analysis.

b. Costs are estimated and rounded. Costs are in net present value. Detailed cost estimates are in Appendix L of the comprehensive investigation report.

☑ Indicates the preferred alternative

(Y) Yes, meets criterion

(N) No, does not meet criterion

● High, best satisfies criterion

◒ Moderate, partially satisfies criterion

○ Low, least satisfies criterion

Sewage Treatment Plant Drainfield (CFA-08) Summary

Contaminant of Concern
- cesium-137 (half-life: 30 years)
- mercury

Contaminated Material
- 74,000 yd^3 of surface and subsurface soil and other materials

Alternatives Evaluated
1. No Action
2. Limited Action
3a. Excavation, Treatment by Separation, and On-Site Disposal
3b. Excavation, Treatment by Separation, and Off-Site Disposal
4. Containment

☑ Preferred Alternative
4 – Containment

Advantages
- Contains contamination until human health risk is below threshold value
- Easily implemented at relatively low cost

Disadvantages
- Does not remove contamination from site

Estimated Cost (in millions, net present value)

Capital	$6.5
Operating and Maintenance	3.4
Total	$9.9

Sewage Treatment Plant Drainfield (CFA-08)

Description

Site CFA-08 includes a sewage treatment plant, a septic tank, a pumping station, a laundry drainpipe from the old "hot" laundry to the treatment plant, a drainfield, and the underground pipelines associated with the drainfield (Figure 5). Only the drainfield contains contamination at levels that require remediation.

The drainfield is a 200- by 1,000-foot area with five sections, or distribution areas. Each section has a distribution box and 20 distribution lines. The first two sections were built in 1944 as part of the Navy's sewer system. Two additional sections were

info In the comprehensive investigation report, the drainfield was evaluated as part of a sewage treatment plant complex designated the "CFA-08 Sewage Plant (CFA-691), Septic Tank (CFA-716), Drainfield, and CFA-49 Hot Laundry Drain Pipe."

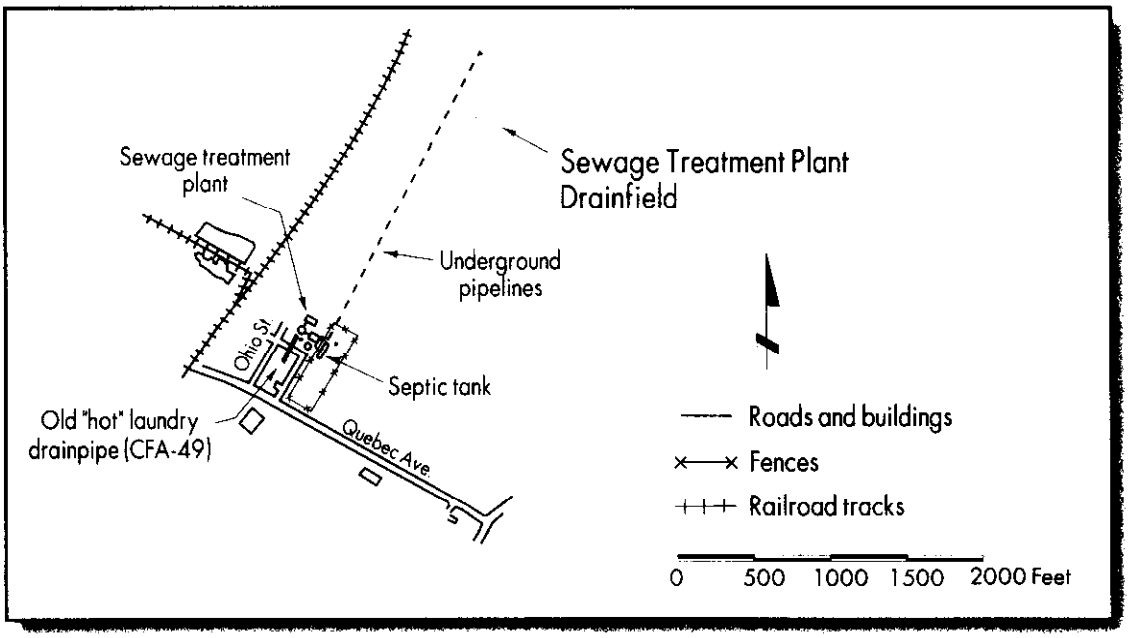


Figure 5. The Sewage Treatment Plant Drainfield (CFA-08).

installed in 1953, and a fifth was added in 1961. The drainfield was used until 1995, when the plant was replaced with a new sewage treatment plant.

Wastewater entered the drainfield through a pipeline along the west side (see Figure 5), and flowed through feeder lines and diversion boxes into the five sections, where it was dispersed through approximately 40,000 feet of gravel-filled trenches containing clay drain tiles. The feeder lines, diversion boxes, and drain tiles contain small amounts of residual low-level radioactive sludge.

The original Navy treatment system handled only sanitary wastewater until 1950, when the INEEL's original laundry was built. The laundry cleaned protective clothing contaminated with low levels of radionuclides. From 1950 to 1995, wastewater from the laundry was treated at the sewage treatment plant before discharge into the drainfield. The treated discharge contained residual quantities of radionuclides. The laundry, including the drainpipe leading to the sewage treatment plant, was decontaminated and dismantled in the 1990s.

perched water:
As moisture percolates downward from the surface toward the aquifer, it may encounter less permeable sedimentary layers where it remains temporarily, suspended in pockets. Without recharge, perched water dissipates over time.

Water from the drainfield created two ***perched water*** zones approximately 103 feet and 150 feet below ground surface. These zones existed from 1944 to 1995, and were monitored with wells. No contaminants were detected at levels that would pose a risk to human health or the environment. The monitoring showed that the lower perched water zone had dissipated by June 1996 and the upper perched water zone had dissipated by January 1997.

The contamination at the drainfield was characterized through sampling in 1994 and 1997. The soil is contaminated with cesium-137, with the highest contamination in the top 3 feet of soil. The total depth of contamination is not known with certainty. The volume of soil is based on the assumption that the contamination is 10 feet deep. The extent of contamination is believed to encompass the entire drainfield (approximately 74,000 cubic yards). The cesium-137 poses a potential human health risk to current and future workers and to future residents (Table 5). Very slight amounts of mercury, also from wastewater, are present and pose a risk to the environment, though not to human health.

The RI/FS provides complete details about the investigation of the site.[30]

Table 5. Risk assessment data for the Sewage Treatment Plant Drainfield (CFA-08).

Contaminant of Concern	Maximum Detected Concentration	Preliminary Remediation Goal	Human Health Risk: *Future Residential Scenario* *Excess Cancer Risk*	Human Health Risk: *Exposure Pathways*	Ecological Risk: *Maximum Hazard Quotient*
Cesium-137 (half-life = 30 years)	180 pCi/g	23 pCi/g	4 in 10,000	soil ingestion, external radiation exposure	N/A
Mercury	0.51 mg/kg	0.74 mg/kg	N/A		30

mg/kg = milligrams per kilogram; N/A = not applicable; pCi/g = picoCuries per gram

Evaluation of Alternatives

Four alternatives were developed for the sewage treatment plant drainfield. One of them, Alternative 1 (No Action), was not considered for selection because it would not meet the threshold criteria for protection of human health and the environment and compliance with laws. However, the No Action Alternative was evaluated in detail to provide a baseline for comparison of the alternatives. The RI/FS provides complete details about all the alternatives.[31]

Alternative 1 - No Action

Description. Under the No Action Alternative, no cleanup action of any type would be performed. Environmental monitoring and 5-year reviews would be carried out.

Evaluation. The No Action Alternative would not meet the threshold criteria for protection of human health and the environment and compliance with laws. Long-term effectiveness would be low, because contaminated soil would remain. Short-term effectiveness would be high, because no handling or transport of contaminants would be required. This alternative would not reduce toxicity, mobility, or volume through treatment. Implementability would be high, because annual environmental monitoring inspections and 5-year reviews are already in place. The estimated $1.1 million cost would result mainly from long-term monitoring.

Alternative 2 - Limited Action

Description. The Limited Action alternative would involve environmental monitoring. In addition, other institutional controls would be used to restrict access to the site. Surface water diversion measures would be used, as necessary, to prevent ponding on the site. Site inspections would be performed twice a year.

Evaluation. Alternative 2 would meet the threshold criteria for protection of human health and the environment and compliance with laws. Long-term effectiveness would be low, because contaminated soil would remain. However, in 189 years, the cesium-137, the only contaminant of concern, would decay to below the human health risk threshold. Short-term effectiveness would be high, because no handling or transport of contaminants would be required. This alternative would not reduce toxicity, mobility, or volume through treatment. Implementability of this alternative would be high because no special technology is required. The estimated $4.8 million cost would result mainly from long-term monitoring.

Alternative 3 - Excavation, Treatment, and Disposal

Description. Alternative 3 would consist of excavation, treatment by separation, and disposal. Two variations of Alternative 3 were developed, differing in whether disposal would be on-site at the ICDF (Alternative 3a) or off-site (Alternative 3b).

Under Alternative 3, the contaminated soil and debris would be excavated, crushed, screened, and sorted on-site to separate soils on the basis of contamination levels. Soils contaminated at levels that exceed remediation goals would be disposed of and "clean" soils would be returned to the excavation. The site would be backfilled with clean soil, contoured to match the surrounding terrain, sloped to divert water, and revegetated.

Under Alternative 3a, soil and debris that exceeds remediation goals would be transported to the ICDF (the on-site disposal facility). If the ICDF is not completed when required per the Central Facilities Area cleanup schedule, the contingent remedy would be Alternative 3b. Under Alternative 3b, soil and debris that exceeds remediation goals would be shipped to an off-site disposal facility.

Institutional controls, consisting of deed restrictions and 5-year reviews, would be used if contamination above remediation goals remained at the site. The only circumstance under which contamination would remain is if it were found at a depth of more than 10 feet below the surrounding ground surface. If the preliminary remediation goal is met at all depths, no institutional controls would be necessary.

The principal ARAR (law) evaluated for the Sewage Treatment Plant Drainfield (CFA-08) was the Idaho Fugitive Dust Emissions for the control of dust. For the Preferred Alternative (4 – Containment), this ARAR will be satisfied through standard dust-control techniques.

info Alternative 2 (Limited Action) was named "Institutional Control" in the comprehensive investigation report, but has been retitled here for consistency with other proposed plans.

info A treatability study using soil separation equipment was conducted in early Summer 1999 at Waste Area Group 5, the Auxiliary Reactor Area/Power Burst Facility. Results of the study will show the extent by which the volume of contaminated soil can be reduced.[32]

Evaluation. Alternative 3 would meet the threshold criteria for protection of human health and the environment and compliance with laws. Long-term effectiveness would be high, because contaminated soil and debris would be removed from the site. Short-term effectiveness would be moderate, because equipment operators and site personnel could be exposed during excavation, treatment, transport, and disposal activities. This alternative would not reduce toxicity or mobility through treatment, but would reduce the volume. Implementability of this alternative would be moderate. Although proposed excavation and soil separation equipment is currently available, the soil separation technology has not been demonstrated on Central Facilities Area soils. In addition, for Alternative 3a, the availability of the ICDF is uncertain. The estimated cost for Alternative 3a is $31.0 million. The estimated cost for Alternative 3b is $36.7 million. Each estimated cost includes excavation, treatment, transportation, and payment of a one-time disposal facility fee (a fixed price per cubic yard). The Alternative 3b cost would be higher because of the additional cost to transport soil several hundred miles to an off-site disposal facility.

Preferred Alternative

Alternative 4 - Containment

Description. Under Alternative 4, the contaminated site would be cleared of vegetation, the soil compacted, and the site capped with a protective cover (see Figure 4 on page 13). The cover would be an evapotranspiration-type engineered barrier, constructed of layers of rock and soil over a layer of impermeable asphalt, concrete, or geosynthetic. It would isolate the waste, inhibit intrusion by plants and animals, reduce water infiltration, prevent wind dispersal of the waste, and require minimum maintenance. The cover would have a life expectancy of 500 to 1,000 years. Implementation of this alternative would include maintenance and monitoring to ensure the cover's integrity. Institutional controls, including deed restrictions, would be required.

Evaluation. Alternative 4 would protect human health and the environment and comply with laws. Its long-term effectiveness would be high, because even though contamination would be left in place, in approximately 189 years the risks from the cesium-137 contamination at this site would decrease to a level below the human health risk threshold. Its short-term effectiveness would be moderate, because equipment operators and site personnel could be exposed during construction of the cover. This alternative would not reduce toxicity, mobility, or volume through treatment; however, it would prevent the spread of contamination from the site during the period of risk. Implementability of this alternative would be high, because construction personnel and materials are readily available on the INEEL. The estimated $9.9 million cost would include maintenance and monitoring as well as construction.

info The cost estimate for the preferred alternative (Alternative 4) is based on a preliminary remediation goal for cesium-137 of 23 pCi/g and for mercury of 0.74 mg/kg (an ecological risk only), levels that will leave the area safe for residential use 100 years from now. However, a more restrictive future land use could result in possible cost reductions because less restrictive cleanup levels could be imposed. For example, if a future industrial exposure scenario was used, the remediation goal would be increased to 110 mg/kg. However, because the preferred alternative is containment, there would be no change in the estimated cost of remediation.

Preferred Alternative 4

Preferred Alternative for the Sewage Treatment Plant Drainfield (CFA-08)

Table 3 summarizes the evaluation of alternatives for the sewage treatment plant drainfield. The preferred alternative for the sewage treatment plant drainfield is Alternative 4 — Containment. It would protect human health and the environment and comply with laws. It would have high long-term effectiveness, because it would contain the contamination until the risks to human health posed by the cesium-137 drop below threshold levels. Short-term effectiveness would be moderate, because of the possibility for worker exposure during construction. It would not reduce toxicity, mobility, or volume through treatment.

Implementability of this alternative would be high, because the technology, personnel, and materials are readily available.

Compared to the other alternatives that would meet the threshold criteria (2, 3a, and 3b), Alternative 4 would have the same or greater long-term effectiveness and implementability. Its short-term effectiveness would be the same as for Alternatives 3a and 3b, but lower than for Alternative 2, because it involves worker activities at the site. Its ranking for reduction of toxicity, mobility, or volume through treatment is the same as for Alternative 2, and is lower than Alternatives 3a and 3b, because Alternative 4 involves no treatment. The estimated $9.9 million cost is higher than for Alternative 2, but significantly lower than for Alternatives 3a and 3b.

Table 6. Comparison of alternatives for the Sewage Treatment Plant Drainfield (CFA-08).

	Alternatives				
			Excavation, Separation, and Disposal		
Criteria	No Action 1	Limited Action 2	On-Site 3a	Off-Site 3b	Containment 4
Threshold Criteria [a]					☑
Overall protection	(N)	(Y)	(Y)	(Y)	(Y)
Compliance with laws	(N)	(Y)	(Y)	(Y)	(Y)
Balancing Criteria					
Long-term effectiveness	○	○	●	●	●
Short-term effectiveness	●	●	◒	◒	◒
Reduction of toxicity, mobility, or volume through treatment	○	○	◒	◒	○
Implementability	●	●	◒	◒	●
Cost (in millions) [b]					
Capital costs	$0.9	$1.4	$30.8	$36.5	$6.5
Operating and maintenance costs	0.2	3.4	0.2	0.2	3.4
Total Cost	$1.1	$4.8	$31.0	$36.7	$9.9

a. An alternative must meet the threshold criteria to be considered for selection. An alternative either fully satisfies the criteria or does not. Alternative 1, No Action, was evaluated in detail only to provide a baseline for comparison of the alternatives.

b. Costs are estimated and rounded. Costs are in net present value. Detailed cost estimates are in Appendix L of the comprehensive investigation report.

☑ Indicates the preferred alternative

(Y) Yes, meets criterion

(N) No, does not meet criterion

● High, best satisfies criterion

◒ Moderate, partially satisfies criterion

○ Low, least satisfies criterion

Transformer Yard (CFA-10) Summary

Contaminants of Concern

- copper
- lead

Contaminated Material

- 160 yd^3 of surface soil

Alternatives Evaluated

1. No Action
2. Limited Action (screened out during preliminary evaluation)
3a. Excavation, Treatment by Stabilization, and On-Site Disposal
3b. Excavation, Treatment by Stabilization, and Off-Site Disposal
4. Containment

☑ Preferred Alternative

3b – Excavation, Treatment by Stabilization, and Off-Site Disposal

Advantages

- Removes contamination
- Relatively low cost
- Disposal facility is available

Disadvantages

- Increases volume of contaminated media

Estimated Cost (in millions, net present value)

Capital	$ 1.4
Operating and Maintenance	—*
Total	$ 1.4

* Included in capital costs.

info From 1985 to 1990, a concrete pad at the site was used as a temporary storage location for transformers, which may have contained PCBs. The comprehensive investigation report evaluated this site as the "Transformer Yard Oil Spills," because transformer "oil" – the lubricant containing PCBs – may have leaked. However, analysis of soil samples revealed that PCBs were at or below 2 mg/kg, well below the threshold for industrial sites. To minimize confusion, this proposed plan refers to the site as the Transformer Yard.

ARARs

The principal ARAR (law) evaluated for the Transformer Yard (CFA-10) was the Hazardous Waste Management Act for treatment and delisting requirements. For the Preferred Alternative (3b – Excavation, Treatment by Stabilization, and Off-Site Disposal), this ARAR will be satisfied through treating and disposing of the waste at a RCRA-permitted facility.

Transformer Yard (CFA-10)

Description

The Transformer Yard (CFA-10) is a 65- by 140-foot fenced yard adjacent to Building CFA-667 (Figure 6). Building CFA-667 was used as a metalworking shop

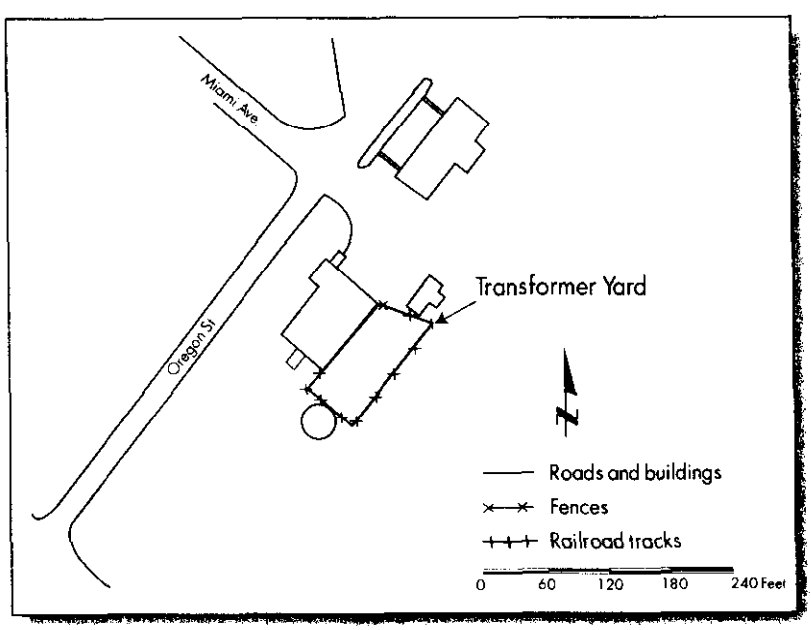


Figure 6. The Transformer Yard (CFA-10).

from 1958 until about 1985. Waste from the shop was not routinely dumped in the yard, although some spills of solid metals may have occurred.

Data from the 1997 and 1998 sampling activities indicate that the top 6 inches of soil are contaminated with lead in concentrations ranging from 16.5 to 5,560 mg/kg (Table 7). The ecological concern at CFA-10 is the risk to receptors from exposure to copper and lead. The estimated volume of contaminated soil is 160 cubic yards.

The RI/FS provides complete details about the investigation of the site.[33]

Table 7. Risk assessment data for the Transformer Yard (CFA-10).

Contaminant of Concern	Maximum Detected Concentration	Preliminary Remediation Goal	Human Health Risk (Future Residential Scenario)		Ecological Risk
			Excess Cancer Risk and Hazard Index	Exposure Pathways	Maximum Hazard Quotient
Lead	5,560 mg/kg	400 mg/kg	Calculation of numeric health risk values for lead is not possible. Instead, the EPA residential screening level for lead was used to determine the need for cleanup.	soil ingestion, dust inhalation	3,000
Copper	259 mg/kg	320 mg/kg	N/A	N/A	70

mg/kg = milligrams per kilogram; N/A = not applicable

Evaluation of Alternatives

Four alternatives were considered for the transformer yard site. Two of them, Alternatives 1 (No Action) and 2 (Limited Action), were not considered for selection because they would not meet the threshold criteria for protection of human health and the environment and compliance with laws. However, the No Action Alternative was evaluated in detail to provide a baseline for comparison of the alternatives. The RI/FS provides complete details about all the alternatives.[34]

info Alternative 2, Limited Action, was named "Institutional Control" in the comprehensive investigation report, but has been retitled here for consistency with other proposed plans.

Alternative 1 - No Action

Description. Under the No Action Alternative, no cleanup action of any type would be performed. Environmental monitoring and 5-year reviews would be carried out.

Evaluation. The No Action Alternative would not meet the threshold criteria for protection of human health and the environment and compliance with laws. Long-term effectiveness would be low, because contaminated soil would remain. Short-term effectiveness would be high because no handling or transport of contaminants would be required. This alternative would not reduce toxicity, mobility, or volume through treatment. Implementability would be high, because annual environmental monitoring inspections and 5-year reviews are already in place. The estimated $0.8 million cost would result mainly from long-term monitoring.

Alternative 3 - Excavation, Treatment, and Disposal

Preferred Alternative

Description. Alternative 3 would consist of excavation, treatment by stabilization with Portland cement, and disposal. Two variations of Alternative 3 were developed, differing in whether disposal would be on-site at the ICDF (Alternative 3a) or off-site (Alternative 3b).

info Alternative 2, Limited Action, was eliminated during preliminary evaluation because it did not meet the threshold criteria.

info The maximum concentration of lead in the Transformer Yard (CFA-10) is 5,560 mg/kg. The cost estimate for the preferred alternative (Alternative 3b) is based on a preliminary remediation goal for lead of 400 mg/kg and for copper of 320 mg/kg (an ecological risk only), levels that will leave the area safe for residential use 100 years from now. However, even with a more restrictive future land use (such as the future industrial scenario), the cleanup levels would not change. Therefore, the cost estimate would not change.

Under Alternative 3, the contaminated soil (approximately 160 cubic yards) would be excavated, treated by stabilization with Portland cement, and disposed of. The excavation would be backfilled with clean soil, contoured to match the surrounding terrain, sloped to divert water, and planted with vegetation.

Under Alternative 3a, the contaminated soil would be disposed of at the ICDF (the on-site disposal facility).

Evaluation. Alternative 3 would meet the threshold criteria for protection of human health and the environment and compliance with laws. Long-term effectiveness would be high, because contaminated soil would be removed from the site. Short-term effectiveness would be moderate, because equipment operators and site personnel could be exposed during excavation, treatment, transport, and disposal activities. This alternative would not reduce toxicity through treatment, but would reduce mobility. The stabilization would increase the volume of waste. Implementability of Alternative 3a would be moderate, because the availability of the ICDF is uncertain. Implementability of Alternative 3b would be high because an off-site disposal facility, services, and materials are all available. The estimated cost of Alternative 3a is $1.3 million. The estimated cost of Alternative 3b is $1.4 million. Each estimated cost would include excavation, transportation, and payment of a one-time disposal facility fee (a fixed price per cubic yard). The Alternative 3b cost would be only slightly higher because, although the soil would be transported several hundred miles to an off-site disposal facility, the small amount of soil makes transportation costs minimal.

Alternative 4 - Containment

Description. Under Alternative 4, the contaminated site would be capped with a protective cover (see Figure 4 on page 13). The cover would be an evapotranspiration-type engineered barrier, constructed of layers of rock and soil over a layer of impermeable asphalt, concrete, or geosynthetic. It would isolate the waste, inhibit intrusion by plants and animals, reduce water infiltration, and require minimum maintenance. The cover would have a life expectancy of 500 to 1,000 years. Implementation of this alternative would include maintenance and monitoring to ensure the cover's integrity.

Evaluation. Alternative 4 would protect human health and the environment and comply with laws. Contamination would be left in place; however, it would be contained, resulting in moderate long-term effectiveness. The short-term effectiveness would be moderate, because equipment operators and site personnel could be exposed during construction of the cover. This alternative would not reduce toxicity, mobility, or volume through treatment; however, it would prevent the spread of contamination from the site. Implementability of this alternative would be moderate, because the more than 9-foot-thick cover would obstruct use of the adjacent building. In addition, the small size of the area to be capped would present some engineering difficulties. The estimated $4.8 million cost would include maintenance and monitoring as well as construction.

Preferred
Alternative 3b

Preferred Alternative for the Transformer Yard (CFA-10)

Table 8 summarizes the evaluation of the alternatives for the transformer yard. The preferred alternative for the transformer yard is Alternative 3b — Excavation, Treatment by Stabilization, and Off-Site Disposal. It would protect human health and the environment and comply with laws. It would have high long-term

effectiveness, because it would remove the contamination. Its short-term effectiveness would be moderate, because of the possibility for worker exposure during excavation, transport, and disposal activities. It would not reduce toxicity through treatment, but would reduce mobility through stabilization. The treatment with Portland cement would increase volume. Implementability of this alternative would be high, because the technology, off-site disposal facility, and personnel are available.

The Agencies selected Alternative 3b as the preferred alternative over Alternative 3a because it could be implemented within 15 months after signing the Record of Decision.

Compared to the other alternatives that would meet the threshold criteria (3a and 4), Alternative 3b would have the same or greater long-term effectiveness and the same short-term effectiveness. Its ranking for reduction of toxicity, mobility, or volume through treatment is the same or better. Its implementability is greater. The estimated $1.4 million cost is slightly more than for Alternative 3a and substantially lower than for Alternative 4.

Table 8. Comparison of alternatives for the Transformer Yard (CFA-10).

Criterion	Alternatives: No Action 1	Excavation, Stabilization and Disposal: On-Site 3a	Excavation, Stabilization and Disposal: Off-Site 3b ☑	Containment 4
Threshold Criteria [a]				
Overall protection	N	Y	Y	Y
Compliance with laws	N	Y	Y	Y
Balancing Criteria				
Long-term effectiveness	○	●	●	◒
Short-term effectiveness	●	◒	◒	◒
Reduction of toxicity, mobility, or volume through treatment	○	◒	◒	○
Implementability	●	◒	●	◒
Cost (in millions) [b]				
Capital costs	$0.8	$1.3	$1.4	$2.1
Operating and maintenance costs	– [c]	– [c]	– [c]	2.7
Total Cost	$0.8	$1.3	$1.4	$4.8

a. An alternative must meet the threshold criteria to be considered for selection. An alternative either fully satisfies the criteria or does not. Alternative 1, No Action, was evaluated in detail only to provide a baseline for comparison of the alternatives. Alternative 2, Limited Action, did not meet the threshold criteria and was eliminated from detailed analysis.

b. Costs are estimated and rounded. Costs are in net present value. Detailed cost estimates are in Appendix L of the comprehensive investigation report.

c. Operating and maintenance costs for this alternative are included in capital costs (see Appendix L of the RI/FS).

☑ Indicates the preferred alternative

Y Yes, meets criterion

N No, does not meet criterion

● High, best satisfies criterion

◒ Moderate, partially satisfies criterion

○ Low, least satisfies criterion

N/A Not applicable

Sites Not Requiring Cleanup

The Agencies agree that 46 sites at the Central Facilities Area do not require cleanup.[35] These sites are listed in Table 9.

Table 9. Central Facilities Area sites not requiring cleanup.

Sites with No Evidence of Hazardous Material Disposal

The investigation determined that at three sites there is no evidence that any hazardous contamination was ever present.

- Two Dry Wells in CFA-665 (CFA-14)
- Dry Well South of CFA-682 Pumphouse (CFA-16)
- Drum Dock at CFA-771 (CFA-39)

Sites with Contamination Below Threshold Levels

At nine sites, the investigation found that suspected contaminants were within the established background levels.

- Motor Pool Pond (CFA-05)[a]
- Central Gravel Pit (CFA-09)[b]
- French Drain North of CFA-633 (CFA-11)[b]
- CFA-760 Pump Station Fuel Spill (CFA-26)
- Returnable Drum Storage (CFA-40)
- Excess Drum Storage (CFA-41)
- Chemical Washout South of CFA-633 (CFA-48)
- Hot Laundry Drain Pipe (CFA-49)
- Shallow Well East of CFA-640 (CFA-50)

Sites Remediated in Previous Actions

At 37 sites previous actions were completed and the sources of contamination no longer exist or are below threshold levels. These actions included previous CERCLA removal actions, decontamination and dismantlement actions, and removal of tanks as part of the INEEL tank program.

- CFA Landfill I (CFA-01)[c]
- CFA Landfill II (CFA-02)[c]
- CFA Landfill III (CFA-03)[c]
- Lead Shop (CFA-06)
- French Drains E/S at CFA-633 (CFA-07)
- French Drains at CFA-690 (CFA-12)
- Dry Well South of CFA-640 (CFA-13)
- Dry Well at CFA-674 (CFA-15)
- Fire Department Training Area, Bermed (CFA-17)
- Fire Department Training Area Gasoline Storage Tank (CFA-18)
- Fuel Tanks at CFA-606 (CFA-19)
- Fuel Tank at Former CFA-609 (CFA-20)
- Fuel Tank at Nevada Circle 1 (CFA-21)
- Fuel Oil Tank at CFA-640 (CFA-22)
- Fuel Oil Tank at CFA-641 (CFA-23)
- Heating Fuel Tank near CFA-629 (CFA-24)
- Fuel Oil Tank at CFA-656 (CFA-25)
- Fuel Oil Tank at CFA-669 (CFA-27)
- Fuel Oil Tank at CFA-674 (CFA-28)
- Waste Oil Tank at CFA-664 (CFA-29)
- Waste Oil Tank at CFA-665 (CFA-30)
- Waste Oil Tank at CFA-754 (CFA-31)
- Fuel Oil Tank at CFA-667 (CFA-32)
- Fuel Tank at CFA-667 (CFA-33)
- Diesel Tank at CFA-674 (CFA-34)
- Sulfuric Acid Tank at CFA-674 (CFA-35)
- Gasoline Tank at Building CFA-680 (CFA-36)
- Fuel Oil Tank at CFA-681 (CFA-37)
- Fuel Oil Tank at CFA-663 (CFA-38)
- Tank Farm Pump Station Spills (CFA-42)
- Lead Storage Area (CFA-43)
- Spray Paint Booth Drain at CFA-654 (CFA-44)
- Underground Storage Tank at CFA-605 (CFA-45)
- Cafeteria Oil Tank Spill at CFA-721 (CFA-46)
- Fire Station Chemical Disposal (CFA-47)
- Dry Well at North End of CFA-640 (CFA-51)
- Diesel Fuel Underground Storage Tank (CFA-730) at Building CFA-613 Bunkhouse (CFA-52)

a. Determination for this site not requiring cleanup is documented in the 1993 Record of Decision for this site.[36]
b. Determination for this site not requiring cleanup is documented in the 1992 Record of Decision for this site.[37]
c. Determination for this site not requiring cleanup is documented in the 1995 Record of Decision for this site.[38]

References

The following list of source material is provided for readers who want more detailed information than is presented in this document. These documents are available in the INEEL Administrative Record or in other federal archives as indicated. Locations of the Administrative Record are listed in the margin of page 29. The title of the primary source (the RI/FS; see entry 3) has been shortened in subsequent entries for convenience.

1. 54 FR 48184, 40 CFR 300, "National Priorities List of Superfund Sites," *Code of Federal Regulations*, Final Rule, U.S. Government Printing Office, July 1997 (available on-line from the National Archives and Records Administration, through http://www.access.gpo.gov/nara/cfr/cfr-table-search.html).
2. *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory* (FFA/CO), December 9, 1991, AR No. 1088-06-29-120 (available on-line at http://www.em.doe.gov/lffaa/inelcerc.html).
3. *Comprehensive Remedial Investigation/Feasibility Study for the Central Facilities Area Operable Unit 4-13 at the Idaho National Engineering and Environmental Laboratory*, February 1999, DOE/ID-10680 (RI/FS).
4. *Agreement-in-Principle between the Shoshone-Bannock Tribes and the U.S. Department of Energy*, August 6, 1998 (available on-line at http://www.id.doe.gov/doeid/BUSINESS/PDF/AIP.PDF or in the Information Repositories).
5. 56 FR 50638, "Safe Drinking Water Act," U.S. Government Printing Office, October 7, 1991 (available on-line from the National Archives and Records Administration, through http://www.access.gpo.gov/nara/cfr/cfr-table-search.html).
6. RI/FS, Table 1-1.
7. *Record of Decision for Ordnance Interim Action*, Operable Unit 10-05, Waste Area Group 10, June 1992, DOE/ID-5137.
8. *Remedial Action Report for the Interim Action to Cleanup Unexploded Ordnance Locations at the INEL (Operable Unit 10-05)*, Rev. 2, April 1994, Wyle Laboratories, AR No. 31-ICP-06.
9. *Record of Decision, Central Facilities Area Motor Pool Pond, Operable Unit 4-11, Waste Area Group 4*, January 1993, DOE/ID-5242.
10. *Record of Decision for Central Facilities Area Landfills I, II, and III (Operable Unit 4-12) and No Action Sites (Operable Unit 4-03)*, October 1995, DOE/ID-10146.
11. *Hydrogeologic Assessment of Nitrate Contamination in Central Facilities Area Monitoring Wells*, April 1999, AR No. _____.
12. RI/FS, Sections 6, 7, and 8.
13. RI/FS, Section 6.
14. RI/FS, Sections 9.2 and 9.3.
15. RI/FS, Section 7.

info INEEL environmental restoration documents can be obtained from the:

- Information Repositories, located in Idaho Falls, Boise, and Moscow (see page 31);
- Administrative Record, available on the Internet at **http://ar.inel.gov**;
- INEEL's Environmental Restoration page on the Internet at: **http://www.inel.gov/environment/em**;

or by calling the INEEL toll-free phone number, 800-708-2680.

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16. RI/FS, Table 8-5.
17. RI/FS, Section 9.5.1.1 and Table 9-1.
18. RI/FS, Section 12.1.
19. RI/FS, Section 12.1.
20. RI/FS, Sections 9.2 and 9.3.
21. RI/FS, Section 9.5.1.1.
22. RI/FS, Sections 4, 8, and 12.
23. *Proposed Plan for Waste Area Group 3, Idaho Chemical Processing Plant, Idaho National Engineering and Environmental Laboratory*, October 1998, AR No. 10542.
24. RI/FS, Section 9.5.5.
25. RI/FS, Section 9.5.5.
26. *Preliminary Scoping Track 2 Summary Report for Operable Unit 4-05*, INEL-95/0626, Rev. 0, April 1996.
27. RI/FS, Sections 4.1.3, 8.4.4, and 9.3.3.
28. RI/FS, Section 11.
29. RI/FS, Sections 9.5.4.1 and 11.5.
30. RI/FS, Sections 4.1.10, 8.4.8, and 9.3.2 and Figure 3-4.
31. RI/FS, Section 11.
32. *Proposed Plan for Waste Area Group 5, Auxiliary Reactor Area/Power Burst Facility*, April 1999, AR No. 17237.
33. RI/FS, Sections 4.1.11, 8.4.9, and 9.3.3.
34. RI/FS, Section 11.
35. RI/FS, Table 1-1.
36. *Record of Decision, Central Facilities Area Motor Pool Pond, Operable Unit 4-11, Waste Area Group 4*, January 1993, DOE/ID-5242.
37. *Record of Decision for Ordnance Interim Action, Operable Unit 10-05, Waste Area Group 10*, June 1992, DOE/ID-5137.
38. *Record of Decision for Central Facilities Area Landfills I, II, and III (Operable Unit 4-12) and No Action Sites (Operable Unit 4-03)*, October 1995, DOE/ID-10146.

Public Involvement

Citizens are encouraged to get involved in decision-making at the INEEL by reviewing this proposed plan and related documents, attending a public meeting or briefing, and providing feedback to the Agencies or the INEEL Community Relations Office.

Idaho Falls	Boise	Moscow
Tuesday, August 17	Wednesday, August 18	Thursday, August 19

Briefings for other communities can be arranged by calling the INEEL's toll-free number 1-800-708-2680.

August

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	**17**	**18**	**19**	20	21
22	23	24	25	26	27	28
29	30	31				

Public Meetings

Three public meetings will be held. Each meeting will follow the same format. From 4:00 to 9:00 p.m., Agency and project representatives will be available to discuss the Central Facilities Area investigation and proposed alternatives. At 7:00 p.m., the Agencies will make a formal presentation, followed by a question and answer session and an opportunity to provide comments. A court reporter will record public comments received and will prepare a transcript of the public meetings. Transcripts from the public meetings will be available in the Administrative Record.

Submitting Comments

In addition to submitting oral comments at the public meetings, citizens can submit written comments by giving them to one of the project representatives at the public meetings. Written comments also can be submitted by mail, on the form included in this proposed plan or in another format. *Please note that the mailing address for comments has changed.* Written comments mailed to any other person or address may not be considered.

This proposed plan is also available on the Internet at **http://www.inel.gov/environment/em/pdf/cfaplan.pdf** as an Adobe Acrobat PDF. A link has been created from this electronic version proposed plan to an on-line comment form, which can also be used to submit comments.

For More Information

Citizens can request additional information or schedule a briefing or tours by contacting the Agencies or the INEEL Community Relations representative for Waste Area Group 4, or by calling the INEEL's toll-free number. The documents referenced in this proposed plan, as well as other related documents, are available in the INEEL Administrative Record, located in Idaho Falls, Boise, and Moscow (see sidebar for locations). The Administrative Record, as well as other INEEL Environmental Restoration and Central Facilities Area information, is available on the Internet.

1800 708-2680

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To request a briefing with project managers:

Call the INEEL Community Relations Office
(208) 526-7225 or (800) 708-2680

Write the INEEL Community Relations Office
P.O. Box 2047, Idaho Falls, ID 83403-2047

E-Mail Ann Riedesel,
Waste Area Group 4 Community Relations representative
amh@inel.gov

info The INEEL Administrative Record is available to the public at the following locations:

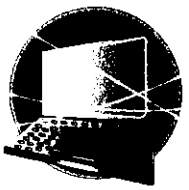
INEEL Technical Library
DOE Public Reading Room
1776 Science Center Drive
Idaho Falls, ID 83415
208-526-1185

Albertsons Library
Boise State University
1910 University Drive
Boise, ID 83725
208-385-1621

University of Idaho Library
University of Idaho Campus
434 2nd Street
Moscow, ID 83843
208-885-6344

The Administrative Record may be accessed on the Internet at **http://ar.inel.gov**

Any library with the Internet can access the Administrative Record.



The INEEL Home Page is on the Internet at: **http://www.inel.gov**

The INEEL's Environmental Restoration information is on the Internet at: **http://www.inel.gov/environment/em**

The INEEL Administrative Record is on the Internet at: **http://ar.inel.gov**

Summary of Preferred Alternatives

The following summary is provided for the reader's assistance. The reader should consult the detailed explanations provided in this document for more information on the preferred alternative and all other alternatives. Details are available in the RI/FS.

Sites	Reader Notes
Disposal Pond (CFA-04) Description: Shallow, dry basin (200 x 500 x 8 feet deep), containing mercury-contaminated soil from laboratory waste discharges, and adjacent area (20,000 square feet) contaminated by wind dispersal of pond waste. Preferred Alternative: 3a – Excavation, Treatment by Stabilization, and On-Site Disposal Estimated Cost: $6.9 million (net present value) Comments: Availability of the ICDF (the on-site disposal facility) is uncertain.	
Sewage Treatment Plant Drainfield (CFA-08) Description: Large area (200 x 1,000 feet) contaminated with cesium-137 and mercury from "hot" laundry wastewater. Preferred Alternative: 4 – Containment Estimated Cost: $9.9 million (net present value) Comments: Contamination is expected to drop below threshold values within 189 years.	
Transformer Yard (CFA-10) Description: Storage yard (65 x 140 feet) contaminated with copper and lead from adjacent metalworking shop activities Preferred Alternative: 3b – Excavation, Treatment by Stabilization, and Off-Site Disposal Estimated Cost: $1.4 million (net present value) Comments: Remediation could begin within 15 months after the Record of Decision is signed.	

WAG 4 Comments (continued)

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WAG 4 Comments

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